

REMARKS

Independent claims 1, 16, and 27 stand rejected as obvious over a combination of Hosotani, Ueno, and Ujiie.

Independent claim 26 stands rejected as obvious over a combination of Hirano and Ujiie.

In setting forth the above rejections, the Examiner stated that Hosotani, Ueno and Hirano disclose a system that has: (1) tool heads that move in X and Y directions; and (2) component platforms that move in X and Y directions. The Examiner then stated that Ujiie disclosed: (3) simultaneous viewing of the tool head and component platforms. The Examiner found the present invention to be obvious either in view of a combination of the Hosotani, Ueno, and Ujiie systems, or in view of a combination of the Hirano and Ujiie systems.

(a) The Presently Claimed Invention:

Independent claims 1, 16, 26 and 27 have all been amended to set forth both the tool head and the component platform being **manually** positionable. Dependent claims 7, 18, 20 and 28 (which had set forth manual positioning) have now been cancelled.

The manually positionable features of the presently claimed invention are novel and particularly advantageous, as follows:

In accordance with the present invention, an operator simply grabs onto the tool head and quickly pulls it into a desired position. This provides rapid **coarse** positioning of the tool head (25) with respect to the component platform (35). Then, the operator grabs onto and rotates the two positioning screws (36 and 38) that

move component platform (35) in X and Y directions, respectively. This provides rapid **fine** positioning of tool head (25) with respect to component platform (35).

Such rapid manual alignment of tool head (25) and component platform (35) is easily accomplished by the Applicants' novel system of simultaneously viewing both tool head (25) and component platform (35) during such manual positioning.

For example, in one preferred embodiment, the operator views a superimposed image of tool head (25) and component platform (35) through a beam splitter (42) in the optical system (40). (See Para 0050 of the specification).

Thus, the operator is able to rapidly and easily position the tool head at an exact preferred location over the component platform. Thus, all of this positioning can be done precisely, easily and quickly by hand (and without the need for stepper motor positioning systems – and their associated electronic circuitry).

(b) The Cited Art:

Each of the Hositani, Ueno and Hirano primary references describe complex, automated systems for component positioning. Such systems incorporate complex control circuitry, and are expensive and cumbersome to operate.

For example, Hositani requires a complex image recognition system 19, that determines optical axis shifts taken from different fields of view using a complex series of logical steps as set forth in detail its Figs. 4 and 5.

Similarly, Ueno uses a component recognition system that is also very complex. For example, as shown in Figs. 10 and 11, the recognition device is typically moved to different positions so as to recognize different parts of the component.

Lastly, Hirano provides a system which (the Examiner admits) does not permit simultaneous viewing of the tool head and the component platform.

(c) The Cited Art Distinguished:

The presently claimed invention describes a simple **manual** system for rapidly aligning electronic components with component boards. The present invention has the advantage that it is less complex and easier to operate than the cited art systems. This is accomplished by providing an optical system in which the operator is simultaneously able too view the tool head and the component platform.

(d) Conclusion:

For the reasons presented above, all claims are believed to be in condition for allowance. A Notice of Allowance is therefore respectfully requested.

Should the Examiner feel that a telephone conference would advance prosecution of the present application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,

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